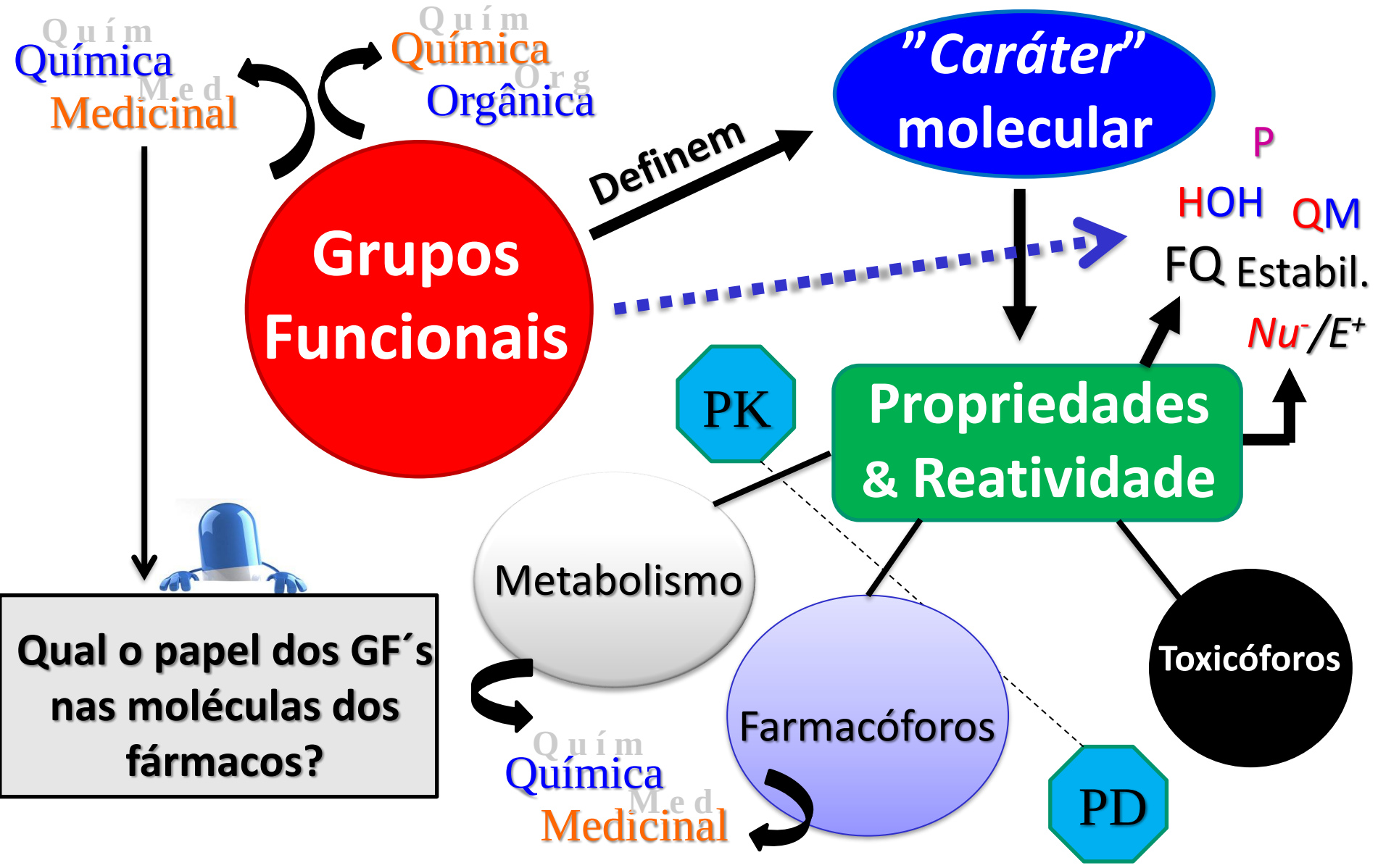
Aula 6 – 02/07

Tópicos Especiais em Química Medicinal

Tópicos Especiais em Química Medicinal
Código: **BMF-777**
Carga Horária: 45 horas
Créditos: 3 créditos

Grupos funcionais



Propriedades moleculares

Química Orgânica

pf/pe

FM/PM

grupos funcionais

Cap. 7

configurações

- Estática
- Dinâmica

Quím Química Med Medicinal

estereoquímica

interações

conformações

T. L. Lemke, *Review of Organic Functional Groups: Introduction to Medicinal Organic Chemistry*, Lippincott Williams & Wilkins, 4th Ed., 2003, Baltimore, MD, EUA. ISBN 0-7817-4381-8

Propriedades moleculares

grupos funcionais

Química Medicinal

Efeitos eletrônicos

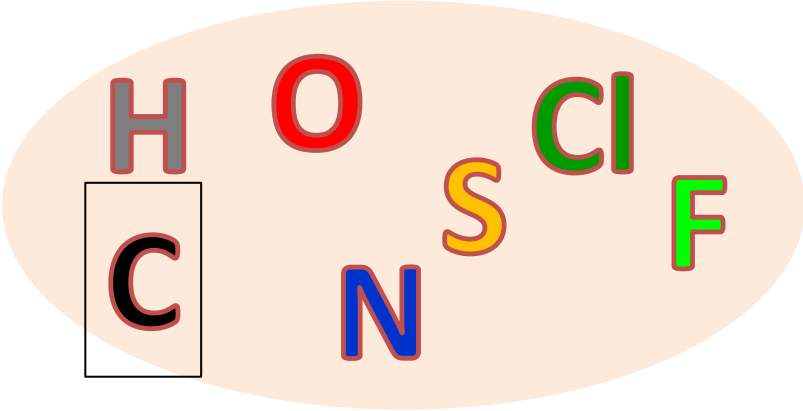
pontos farmacofóricos

Eletronegatividade ⟶ $H_3C—X$

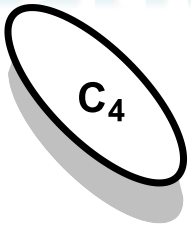
$\delta^+ \longrightarrow \delta^-$ dipolo

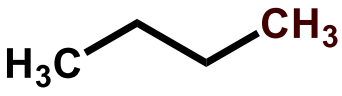
Hetero-átomo

- Polarizabilidade
- Polarização δ^-/δ^+
- Momento dipolar
- Efeito indutivo
- *Efeito de ressonância*



Grupos Funcionais



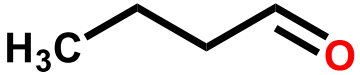


alcano

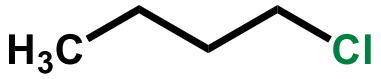
alceno

2-butino

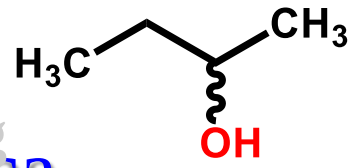
n-butanol

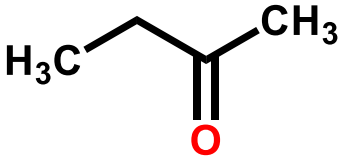


n-butanal

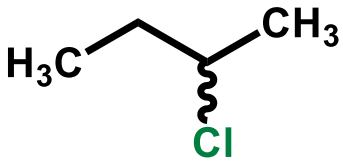


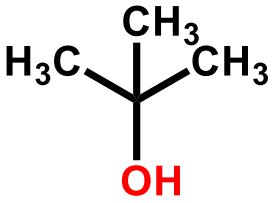
cloreto de *n*-butila

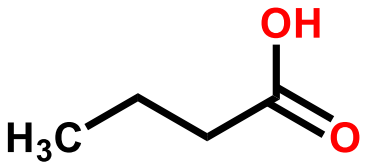




2-butanona

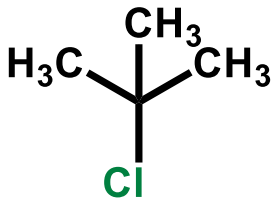


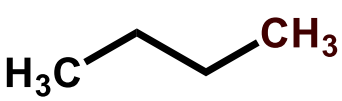




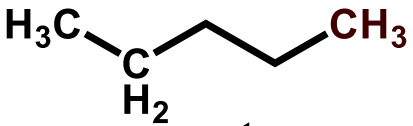
ácido *n*-butanóico

Hidróxi-cetona

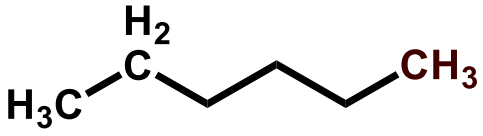




n-butano



n-pentano

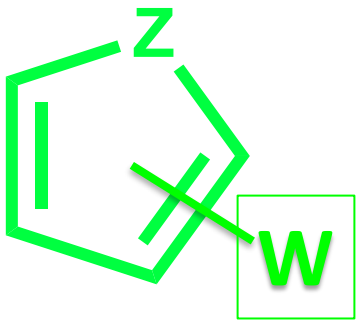


n-hexano

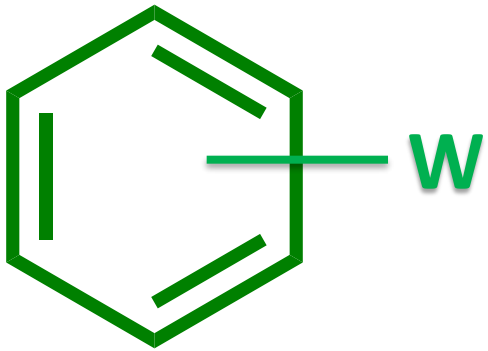
Série homóloga $C_4 \longrightarrow C_5 \longrightarrow C_6$

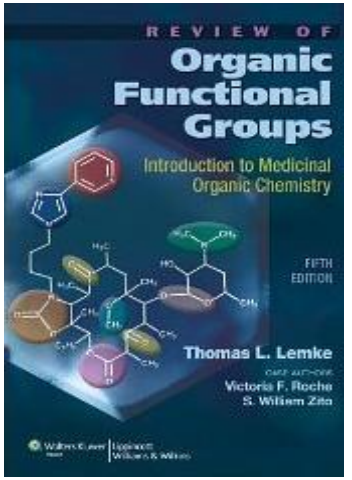
Grupos funcionais e os fármacos

Os mais frequentes…

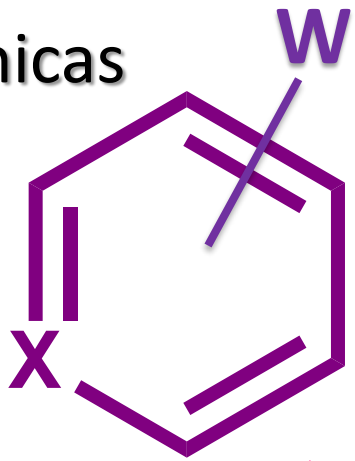


Z = NH, O, S



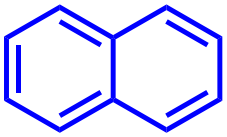


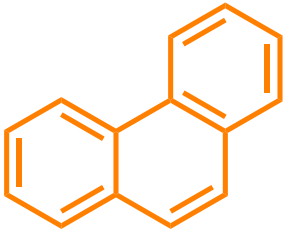
Propriedades eletrônicas

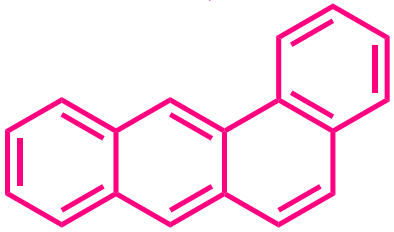


X = N

6, 10, 14, 18 π





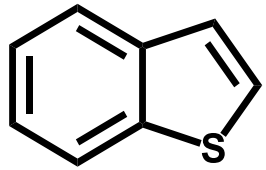


[Curso XXV EVQFM Parte 1]

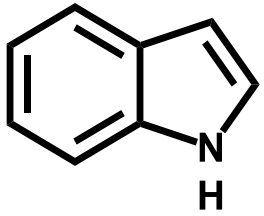
[Curso XXV EVQFM Parte 2]

50% do fármacos atuais contêm pelo menos um *anel aromático*, capaz de sofrer substituições.

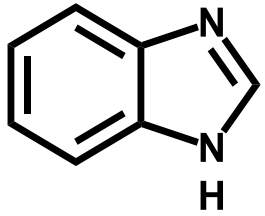
Heterocíclicos



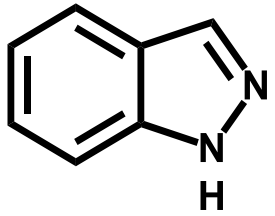
Benzotiofeno



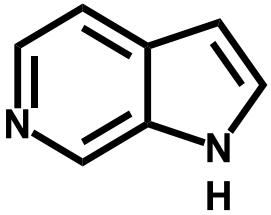
Indol



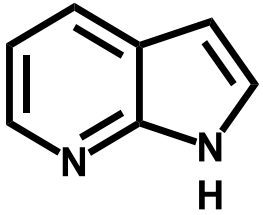
Benzimidazol



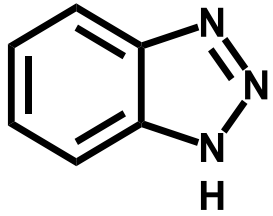
Indazol



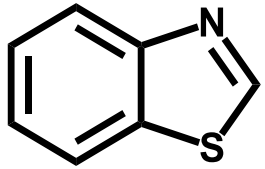
Pirrolo[2,3-*c*]piridina



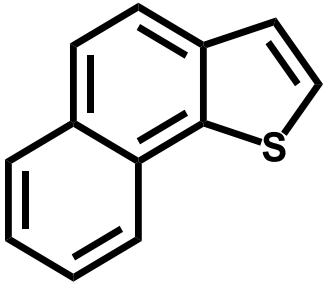
7-aza indol



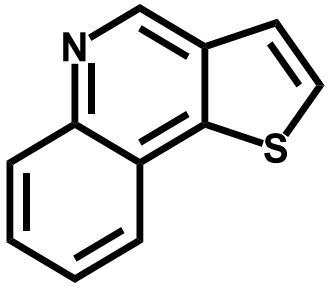
1*H*-Benzotriazola



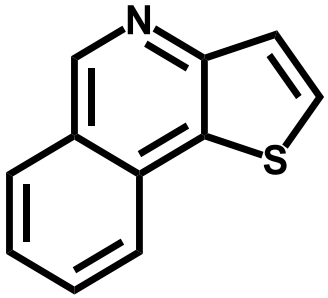
Benzotiazola



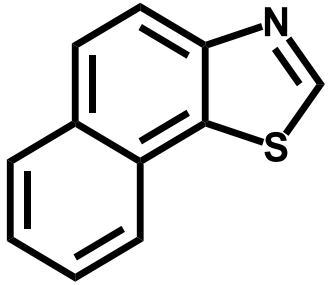
Naphtho[1,2-b]thiophene



Thieno[3,2-c]quinoline



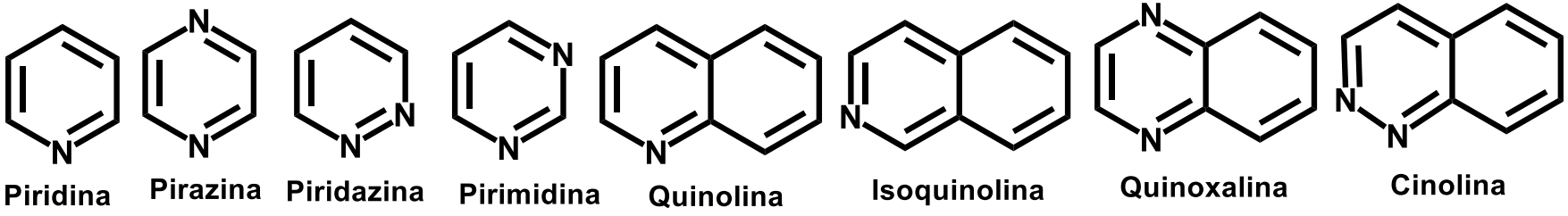
Thieno[3,2-c]isoquinoline



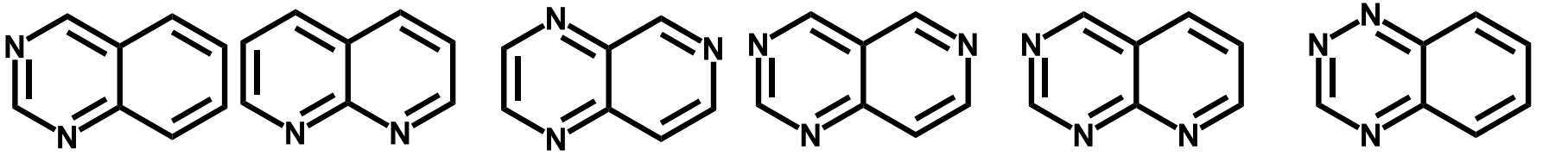
Naphtho[2,1-d]thiazole

a) RD Taylor, M MacCoss, ADG Lawson, Rings in Drugs, *J Med Chem* **2014**, *57*, 5845; b) E Vitaku, DT Smith, JT Njardarson, Analysis of the structural diversity, substitution patterns, and frequency of nitrogen heterocycles among U.S. FDA approved pharmaceuticals, *J. Med. Chem.* **2014**, 57, 10257; c) LM Lima, EJ Barreiro, Bioisosterism: A Useful Strategy for Molecular Modification and Drug Design *Current Medicinal Chemistry* **2005**, *12*, 23; d) ibid, Beyond Bioisosterism: New Concepts in Drug Discovery, Comprehensive Medicinal Chemistry, 3rd Ed., 2017.

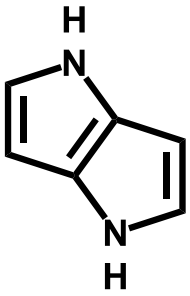
Aza-heterocíclicos



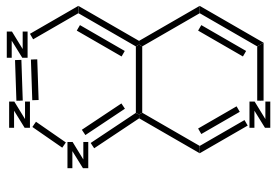
Piridina Pirazina Piridazina Pirimidina Quinolina Isoquinolina Quinoxalina Cinolina



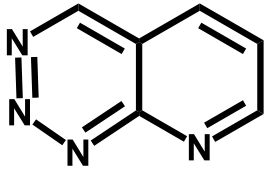
Quinazolina 1,8-Diazanaftaleno Pirido[4,3-*b*]pirazina Pirido[4,3-*d*]pirimidina Pirido[2,3-*d*]pirimidina 1,2,4-Benzotriazina



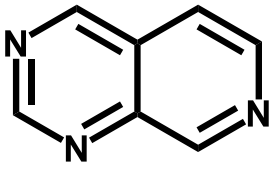
1,4-Diidropirrolo[3,2-*b*]pirrola



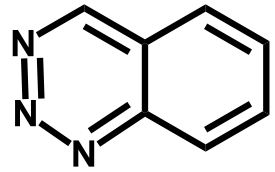
Pirido[3,4-*d*]-[1,2,3]-triazina



Pirido[2,3-*d*]-[1,2,3]-triazina



Pirido[3,4-*d*]pirimidina



1,2,3-Benzotriazina

1197 estruturas de fármacos no mercado (FDA) até 2013 → **351** sistemas cíclico